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REMARKS

Favorable reconsideration is respectfully requested.

The claims are 1-5.

The above amendment is responsive to points set forth in the Official Action.

In Official Action paragraph 3, the rejection questions how the laminate is "used" to form a small-diameter hole. The above amendment clarifies this point by reciting that the laminate has a small-diameter hole formed by irradiation with a carbon dioxide laser.

Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishii et al. (U.S. 5,368,921) in view of Touzaki (JP 11-77892).

The rejection states that Ishii et al. discloses (a) providing a metal foil-clad laminate, (b) that the substrate can be a woven glass fabric with a preferred thickness of 0.05 to 0.2 mm, but (c) does not specifically provide a weight for the woven glass fabric and (d) does not specifically mention the gas permeability of the glass fabric.

The rejection further states that Touzaki teaches that the permeability of glass fabric for making a copper-clad laminate is preferably 1-15 $cc/cm^2/sec$, in order to obtain a laminate where air bubbles are not present and where the resin constituent sufficiently sinks into the glass fabric.

The rejection also states that it would have been obvious to one of ordinary skill in the art to use a glass fabric with a permeability between 1-15 $cc/cm^2/sec$ in the laminate of Ishii et al.

This rejection is respectfully traversed.

As explained in the Response dated March 12, 2003, Ishii et al. has no specific description about the glass woven fabric, so that it is assumed that Ishiii et al. employs a generally used, conventional glass woven fabric.

As described in the Rule 132 Declaration enclosed with said Response of March 12, 2003, the prepreg using glass woven fabric satisfying the requirements of the present invention is excellent in varnish impregnation properties and excellent in freedom from voids, compared to the prepreg using a generally used, conventional glass woven fabric.

Further, the above Declaration and Response, at pages 3 and 4, clarified that the above prepreg of the present invention was excellent in surface roughness and modulus of rigidity (elasticity) and, in addition, that it was excellent in hole processability when holes were formed with a carbon dioxide gas laser.

Ishii et al. does not at all disclose or suggest that holes are made in a copper-clad laminate with a carbon dioxide gas laser, nor does it mention the hole processability of the copper-clad laminate.

Touzaki discloses a process for the production of a copper-clad laminate comprising heating and fluidizing a solventless thermosetting resin composition, applying the fluidized resin composition to a copper foil, placing a fiber base material on the copper foil, further laminating another copper foil thereon and then integrating and curing the resultant set by heating. Touzaki discloses that, since the impregnation with the resin is difficult in this case, a glass woven fabric having a specific gas permeability is preferred.

Neither Ishii et al. nor Touzaki disclose or suggest that a small-diameter hole is formed in the copper-clad laminate by irradiation with a carbon dioxide gas laser. Moreover, neither Ishii et al. nor Touzaki recognize or disclose the hole processability shown when the hole is formed with a carbon dioxide gas laser. Therefore, it is unobvious for one having ordinary skill in the art, to arrive at the present invention from the teachings of Ishii and Touzaki, which, at best, describe parts of the structure of the present invention.

Although the following explanation and data, to some extent, overlaps the discussion and photographs in the Response dated March 12, 2003, the significance of the glass woven fabric specified by the present invention will be further explained.

Attached Data 1 shows photographs of cross-sections of glass woven fabrics which have a gas permeability of 210 $cm^3/cm^2/sec.$, a gas permeability of 19 $cm^3/cm^2/sec.$ and a gas permeability of 17 $cm^3/cm^2/sec.$, respectively.

Attached Data 2 shows enlarged photographs of these cross-sections of glass woven fabrics. Openings are present between glass threads in the general (conventional) type glass

woven fabric, while almost no opening is present between glass threads in the glass woven fabrics satisfying the requirements of the present invention.

Generally, holes having a diameter of 80-150 μm are formed with a carbon dioxide gas laser. Concerning the general glass woven fabric, when such a hole is formed exactly in a portion where the glass thread is not present, the shape of the hole changes and is not a round shape and further, the diameter of the hole increases.

In contrast, since glass threads are present in all portions in the glass woven fabric of the present invention, the hole shape is round and the hole diameter is uniform, so that the variance of the hole shape or the hole diameter is small.

Attached Data 3 shows these points. The left side of Data 3 shows a case using a conventional glass woven fabric and the right side thereof shows a case using the glass woven fabric of the present invention.

The photograph at the left side in attached Data 4 shows the shape of a penetration hole which was formed using a conventional glass woven fabric, and the right side thereof shows the shape of a penetration hole which was formed using the glass woven fabric of the present invention.

It is obvious that the hole shape of the right side photograph is excellent.

Further, the rejection states in Official Action paragraph 9 that "However, the functional limitation in claim 1 where the material is used to form a small-diameter hole with a carbon dioxide gas laser" is a recitation of an intended use of the product. The intended use of a product is not given patentable weight in a product claim.

This is no longer the case based on above-amended claim 1, since an intended use is not recited.

For the foregoing reasons, it is apparent that the rejection on prior art is untenable and should be withdrawn.

No further issues remaining, allowance of this application is respectfully requested.

If the Examiner has any comments or proposals for expediting prosecution, please contact undersigned at the telephone number below.

Respectfully submitted,

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By: _____

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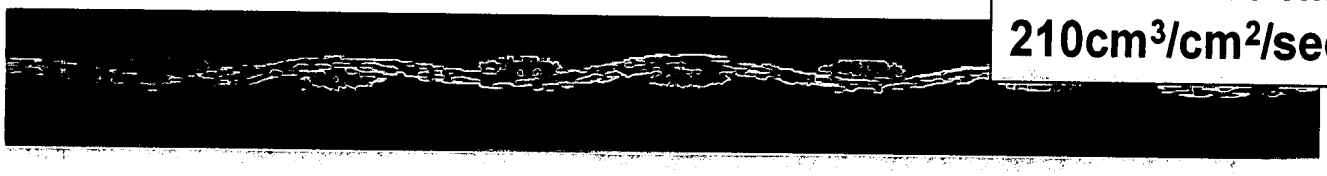
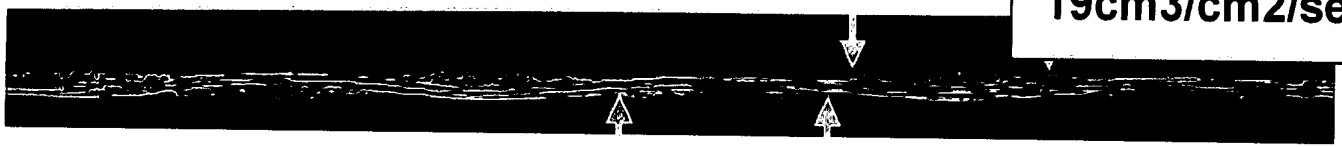
Data 1

Fabric Cross Section

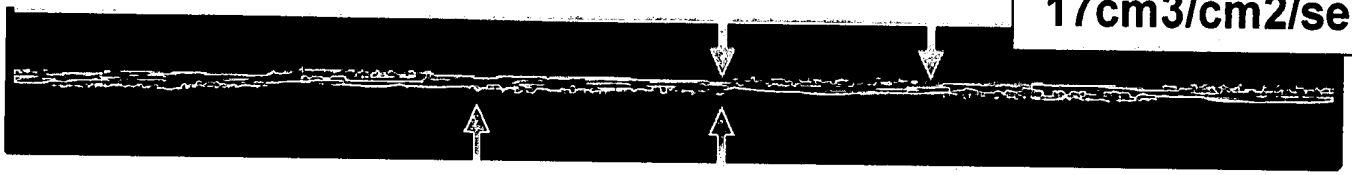
(45 μ m,40g/m^2)



General type:
Gas Permeability
210cm^3/cm^2/sec.



Patent type1:
Gas permeability
19cm3/cm2/sec.

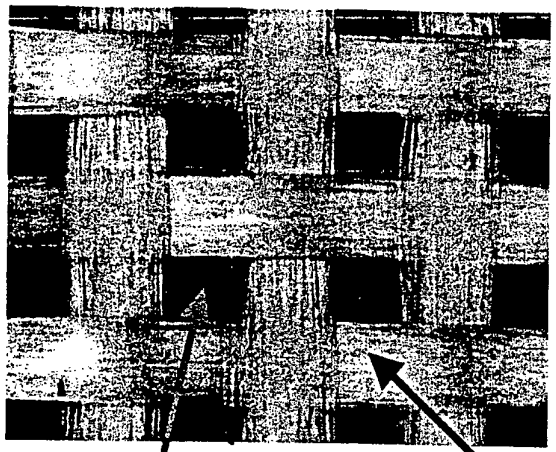


Patent type2:
Gas permeability
17cm3/cm2/sec.

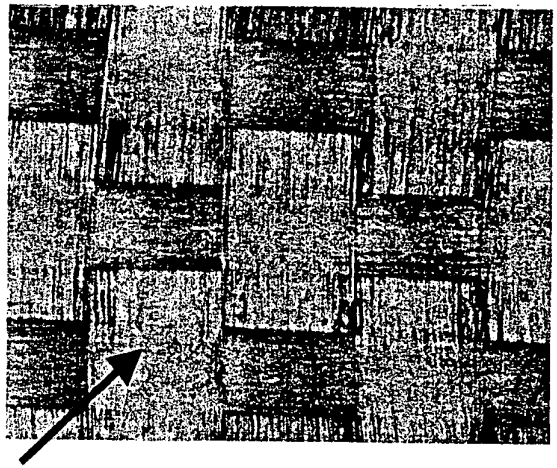
Data 2

Fabric Surface View

General Type

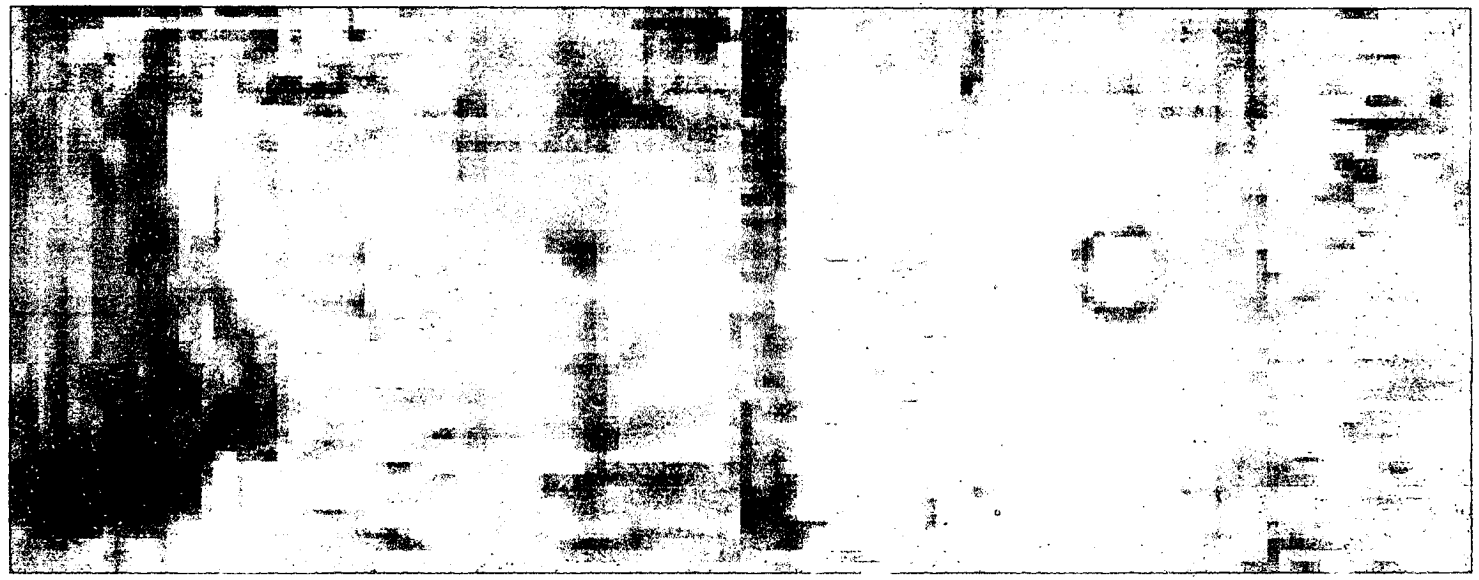


Patent Type



Data -

CO_2 Laser Processability

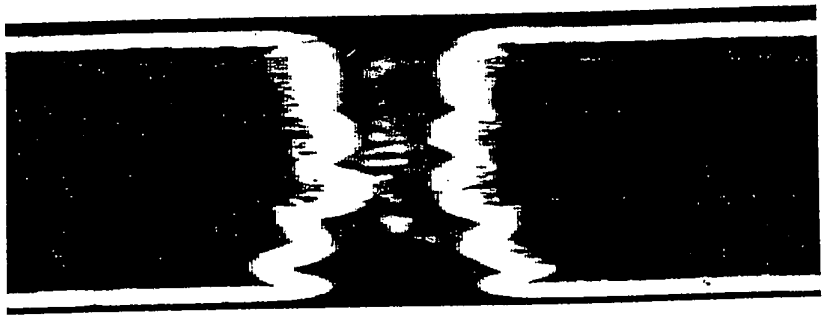


Data 4

CO_2 Laser Processability

The hole diameter : 100 μ m ϕ

Penetration Hole of
Comparative Example 1



Penetration Hole of
Example 1